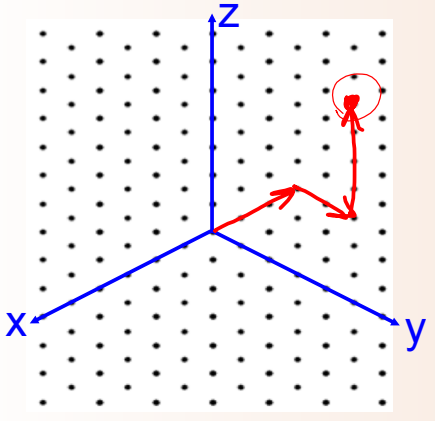
Alg. 2 Warm Up # 8-1

Find the exponential equation through:

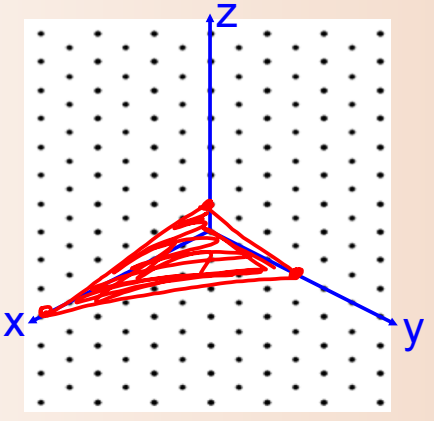
(6, 8192) and (-2, 0.125)

Tan worksheet:

1. (-3, 2, 4)



2. x + 2y + 6z = 6



Tan worksheet: Elim x

5. ① $x + 7y - 6z = -12$ → $2x + 14y - 12z = -24$
② $-2x - 3y + z = -9$ → $-2x - 3y + z = -9$
③ $2x + 5y + 5z = 19$

$11y - 11z = -33$

$\frac{11y}{-11} - \frac{11z}{-11} = \frac{-33}{-11}$

$-y + z = 3$

② + ③ $\frac{2y}{2} + \frac{6z}{2} = \frac{10}{2}$

$y + 3z = 5$

① (2) + ② $-y + z = 3$

$4z = 8$

$z = 2$

$y + 3(2) = 5$

$-6 \quad -6$

$y = -1$

① $x + 7(-1) - 6(2) = -12$

$x - 7 - 12 = -12$

$x = 7$

$(7, -1, 2)$

Tan worksheet: $y = ax^2 + bx + c$

6) $(1, 3) \rightarrow 3 = a(1)^2 + b(1) + c$

$(-3, 39) \rightarrow 39 = a(-3)^2 + b(-3) + c$

$(6, 48) \rightarrow$

$a + b + c = 3$ ①

$9a - 3b + c = 39$ ②

$36a + 6b + c = 48$ ③

③ − ② $\frac{27a}{9} + \frac{9b}{9} = \frac{9}{9}$

$3a + b = 1$

② − ① $\frac{8a}{4} - \frac{4b}{4} = \frac{36}{4}$

$2a - b = 9$

$3a + b = 1$

$5a = 10$

$a = 2$

$3(2) + b = 1$

$b = -5$

$2 - 5 + c = 3$

$-3 + c = 3$

$c = 6$

Answer: $y = 2x^2 - 5x + 6$

Tan worksheet:

7a) $f^{-1}(x) = \sqrt[3]{\frac{x+6}{2}}$ b) $y^{-1} = (x-7)^2 + 3$ c) $y^{-1} = \pm\frac{\sqrt{x}}{2} - 1$

$y^{-1} = x^2 - 14x + 52$;
for $x \geq 7$

b) $y = \sqrt{x-3} + 7 \rightarrow$

$x = \sqrt{y-3} + 7$

$(x-7)^2 = (\sqrt{y-3})^2$

$y - 3 = (x-7)^2 + 3$
$+3$

$y = (x-7)^2 + 3 \; ; \; x \geq 7$

d: $x \geq 3$
r: $y \geq 7$

8a) $4^{x-7} = 5$

$\log_4 5 = x - 7$

9a) $3^{7x} = 27^{2x-5}$

$3^{7x} = (3^3)^{2x-5}$

$7x = 6x - 15$

9c) $3^x \cdot 3^4 = 9^{2x}$

$3^{x+4} = (3^2)^{2x}$

$3^{x+4} = 3^{4x}$

9b) $4^{x+2} = \left(\frac{1}{8}\right)^{x-6}$

$(2^2)^{x+2} = (2^{-3})^{x-6}$

$2x + 4 = -3x + 18$

$-4 \quad -4$

$\frac{5x}{5} = \frac{14}{5}$

11) $\frac{0.8}{2500} = \frac{ab^1}{ab^{-4}}$

$\sqrt[5]{0.00032} = \sqrt[5]{b^5}$

$b = 0.2$

12) a) $f(6) = (6+2)^2 - 3$

$f(6) = 61$

12b) $f(a+3) = (a+3+2)^2 - 3$

$= (a+5)^2 - 3$

$= a^2 + 10a + 25 - 3$

$= a^2 + 10a + 22$

11. $(1, 0.8)$ $(-4, 2500)$

$\frac{0.8}{2500} = \frac{ab^1}{ab^{-4}}$ $\quad 2500 = ab^{-4}$

$0.00032 = b^5$

$b = 0.2$

$\frac{0.8}{0.2} = \frac{a(0.2)}{0.2}$

$a = 4$

$y = 4(0.2)^x$

13) Condense

$\log_2 x + \log_2 3 - \log_2 5$

$\log_2 3x - \log_2 5 \rightarrow \log_2\left(\frac{3x}{5}\right)$

14) Expand

$\log_3\left(\frac{x^2}{4}\right)$

$\log_3 x^2 - \log_3 4$

$2\log_3 x - \log_3 4$

Practice.

① $x - 9y + 4z = 1$

② $-4x + 18y - 8z = -6$

③ $2x + y - 4z = -3$

$(2, 1, 2)$

x y z answers

$$\begin{bmatrix} 1 & -9 & 4 & 1 \\ -4 & 18 & -8 & -6 \\ 2 & 1 & -4 & -3 \end{bmatrix} \xrightarrow{\text{rref}} \begin{bmatrix} 1 & 0 & 0 & x \\ 0 & 1 & 0 & y \\ 0 & 0 & 1 & z \end{bmatrix}$$

rows x # columns

3 x 4

Practice

$x - 7y + 3z = -10$

$-3x + 14y - 6z = 19$

$2x + y - 3z = 1$

$(1, 2, 1)$

$$\left[\begin{array}{ccc|c} 1 & -7 & 3 & -10 \\ -3 & 14 & -6 & 19 \\ 2 & 1 & -3 & 1 \end{array}\right] \xrightarrow{\text{rref}} \left[\begin{array}{ccc|c} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 2 \\ 0 & 0 & 1 & 1 \end{array}\right]$$

Last Practice:

① $7x - 4y - z = -1$

② $3x + 2y + 3z = 15$

③ $x - y + z = -5$

$(3, 6, -2)$

$y = ax^2 + bx + c$

$(-1, -15) \rightarrow$

$(2, -9) \rightarrow$

$(4, -35) \rightarrow$

$$\left[\begin{array}{ccc|c} 1 & -1 & 1 & -15 \\ 4 & 2 & 1 & -9 \\ 16 & 4 & 1 & -35 \end{array}\right]$$

$y = -3x^2 + 5x - 7$

HW: Yellow Review WS

Test Chapter 6 tomorrow.
Scientific calculator ok, no graphers.